

**Protocol  
for  
Incidental Take Authorization  
  
Regal Fritillary (*Speyeria idalia*)**

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**Note**

*If carrying out a given protocol is not feasible, or multiple listed species in a given management area pose conflicts, contact the Bureau of Endangered Resources at 608/264-6057. Staff in BER will work with Integrated Science Services (Research) staff, species experts and managers to establish an acceptable protocol for a given site that will allow for incidental take without further legal Consultation or public notice*

**I. Species Background Information**

**A. Status**

**State status:** Endangered.

**USFWS Region 3 species of management concern?** Yes.

**Number of known sites in Wisconsin:** Occurs at 12 sites in Crawford, Portage, Columbia, Green, Iowa, Trempealeau, Juneau, Ozaukee, and St. Croix Counties.

**Global Range:** Formerly from the east coast to Montana and Colorado south to Oklahoma, now largely extirpated from the eastern portion of the range.

**B. Habitat**

**Larval Host Plants:** Violets, primarily prairie violet (*Viola pedatifida*), birdsfoot violet (*V. pedata*) and arrowleaf violet (*V. sagittata*), as well as other species available at the site. In Illinois, regals have been observed using the Eurasian species, Johnny-jump-up (*Viola tricolor*).

**General Habitat Description:** The larval host plants for the regal fritillary are violets.

Large grassland areas of at least 100 acres with prairie remnants or lightly grazed pastures containing prairie vegetation are the habitats most likely to support regals in Wisconsin. The topography ranges from hilly to level and often includes contiguous wet prairie, meadow, or seepage areas supporting violets. Regals are strong fliers and appear to require large areas to support a population. The availability and distribution of quality habitat affects the size of an area that will be used by the butterflies.

**Critical Habitat Features:** Presence of the larval food plants and nectar plants during the adult's long flight period. Nectar sources are numerous, and include thistle (*Cirsium* sp.), milkweed (*Asclepias* sp.), bergamot (*Monarda fistulosa*), and asters (*Aster* sp.).

### C. Life History

**Number of generations per year:** One.

**Over-wintering stage:** New larvae.

**Over-wintering location:** Assumed to be in or under the leaf litter.

**Seasonal adult flight period:** In Wisconsin, adults are active between late June and early September with peak flight usually during mid to late July/early August. Individual regals have been known to survive up to 90 days in the wild.

**Single season dispersal:** Nebraska butterflies have been shown to often fly over 3 km.

**Egg location:** Although females are mated shortly after they begin to fly, oviposition occurs on or near violets not until August and September. There is some evidence that females may randomly lay their eggs on vegetation without selecting proximity to violets, requiring the young larvae to make their way to the appropriate foodplants.

**Larval location:** Eggs hatch after 2-3 weeks and the new larvae immediately enter diapause, seeking shelter in or under the leaf litter. The following spring when temperatures rise, the larvae begin to feed on the violet leaves.

**Pupation location:** Larvae complete development by early June and the pupal stage lasts another 2.5 to 4 weeks, average length approximately 14 days. Pupation occurs in early summer on the vegetation.

## II. Management Protocol For Authorized Incidental Take

If the management activity is for the purpose of recovering, maintaining or improving the grassland, prairie or savanna ecosystem that includes habitat for regal fritillaries, then incidental take is allowed under the following conditions:

### A. **Burning**

Only burning that occurs between September 15 and June 15 is allowed.

1. With violet surveys prior to management and every subsequent five years so that the location of violet patches can be incorporated into burn unit planning,  
*(Note: surveys following unit burns within the 5-year period can be used to update overall burn-unit planning.)*

AND

- a. Monitoring of butterflies<sup>1</sup> is occurring each year, AND
  - i) All violets are managed with fire,  
  
then an area may be burned annually that includes up to 20% of the entire violet population on the site, but, based on the previous year's butterfly counts, no more than 20% of the adult activity area (see definitions).
  - ii) If 25% or more of the entire violet population on the site is managed with other than fire, and that same area is not burned for at least 5 years,  
  
then an area may be burned annually that includes up to 30% of the remaining violets, but, based on the previous year's butterfly counts, no more than 20% of the adult activity area.
- b. If no monitoring of butterflies is occurring each year, AND
  - i) All violets are managed with fire,

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<sup>1</sup> *At least 2 years of baseline monitoring must occur before burning begins, and the monitoring must follow protocol acceptable to the DNR Bureaus of Endangered Resources and Integrated Science Services.*

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then up to 10% of the entire violet population on the site may be burned annually at a 5-7 year return interval.

- ii) If 25% or more of the entire violet population on the site is managed with other than fire, and that same area is not burned for at least 5 years,

then 25% of the remaining violets may be burned annually at a 5-7 year return interval.

- 2. With no violet surveys prior to management and at least every subsequent 5 years, then 5% of the violet population may be burned annually.

**B. Mowing/Haying**

- 1. If mowing/haying with a blade height of at least 3 inches AND management is conducted between September 15 and June 15,  
  
Then there are no restrictions on mowing or haying once per season.
- 2. If mowing/haying with a blade height of at least 3 inches AND management is conducted between June 15 and September 15, AND
  - a. Monitoring of regals is occurring<sup>2</sup>,  
  
Then an area including up to 40% of the violet population may be mowed/hayed annually.
  - b. No monitoring of regals is occurring,  
  
Then an area including up to 20% of the violet population may be mowed/hayed annually.

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*2 At least 2 years of baseline monitoring must occur before burning begins, and the monitoring must follow protocol acceptable to the DNR Bureaus of Endangered Resources and Integrated Science Services.*

**C. Selective Brush/Tree-cutting**

Selective brush/tree-cutting can be used annually on an area including up to 1/3 of the violet population. In contiguous open grassland areas, there are no restrictions on brush/tree cutting.

**D. Herbicide Use**

If the violets are not exposed to the herbicide or the herbicide used will not kill the violets nor adversely impact insects, AND the violets are not trampled or crushed during application, there are no restrictions on selective herbicide use.

In contiguous open grassland areas, there are no restrictions on selective herbicide treatments, nor broadcast spraying for broadleaf and cool season grass control if broadcast spraying is applied in those areas between September 15 and June 15.

**E. Grazing**

1. If light grazing at a density of 1 head cattle or 1 horse or 6 sheep for 3.5 acres,

Then there are no restrictions on grazing over the entire site and season.

2. If moderate to heavy grazing at a maximum density of 1.5 head of cattle per acre or comparable numbers of other herbivores, AND

- a. Monitoring of regals is occurring<sup>3</sup>,

Then grazing may occur in up to 20% of the habitat per year with the grazed area rested for at least two years.

- b. No monitoring of regals is occurring,

Then grazing may occur on 10% of the habitat per year with the grazed area rested for at least two years.

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*3 At least 2 years of baseline monitoring must occur before burning begins, and the monitoring must follow protocol acceptable to the DNR Bureaus of Endangered Resources and Integrated Science Services.*

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## **Survey Protocol**

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For Presence/Absence Surveys for Regal Fritillary:

Personnel conducting the surveys must be adequately trained in Wisconsin butterfly survey and identification.

Survey period: Adult flight season as indicated above. Observations of immatures are not acceptable to establish regal fritillary presence.

Weather conditions: Survey above 70 degrees F. Survey on sunny or partially sunny days. Do not survey during rain or high winds.

Time of day: Survey between 10:00 AM and 5:00 PM.

Number of site visits: Survey 3 times between mid July and September 1 for two consecutive seasons.

Survey method: Two or more persons per site visit to walk through all areas of regal habitat on the site paying particular attention to possible females kicked up from the grasses as well as fast flying male butterflies. Search nectar plants near adjacent roadsides, farm buildings, etc.

## Definitions

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### Definition of “Site” for Regal Fritillary:

The habitat composed of violet areas and contiguous open grassland areas (with no partitioning by forested areas, tree-covered fencerows, etc. that may act as barriers) that are suitable for regal fritillary use. Barriers such as wooded fencerows, and forested areas should be regarded as the boundary of the regal’s site. The habitat of the butterfly population may be quite large and extend across ownership boundaries. For the purposes of this protocol, site is defined as those portions of the habitat within a given property ownership, or across ownerships where survey and management agreements for the species are in place. Within a single ownership, habitat with violet areas separated by more than 1 mile (with no significant forest barriers) are considered separate sites.

**“Violet areas:”** Those areas of regal habitat that support the larval food plants including the areas between violet patches.

**“Contiguous open grassland areas:”** Those areas of regal habitat surrounding violet areas and supporting grassland plants including, but not exclusively composed of, prairie plants, other native or non-native nectar sources, and pasture grasses.